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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)
H0005226

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Application Number	Filed
10/696,215	2003-10-28

First Named Inventor
Devlin M. Gualtieri

Art Unit	Examiner
2862	Schindler, David M.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal. [X]

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided. [ ]

I am the

[ ] applicant/inventor.

[ ] assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

[✓] attorney or agent of record.
Registration number 45,264

[ ] attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

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December 23, 2008
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

[✓] *Total of 1 forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Devlin M. GUALTIERI
Group Art Unit: 2862
Serial No.: 10/696,215
Examiner: D.M. Schindler
Filed: October 28, 2003
Confirmation No.: 7391
For: TURBINE BLADE PROXIMITY SENSOR AND CONTROL SYSTEM
Docket No.: H0005226
Customer No.: 00128

ARGUMENTS ACCOMPANYING PRE-APPEAL BRIEF REQUEST FOR REVIEW

I. Status of the Claims

Claims 11, 12, and 20 stand finally rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent Nos. 3,177,711 (Ham et al.), 4,324,144 (Miyata et al.), and 4,842,477 (Stowell), and the remaining dependent claims stand variously rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Ham et al., Miyata et al., Stowell, and U.S. Patent No. 4,230,436 (Davison), U.S. Patent No. 4,644,270 (Oates et al, U.S. Patent No. 5,854,553 (Barclay), British Patent No. 2,167,603 (Wilkinson), and U.S. Patent No. 6,486,657 (Schroeder).

II. Arguments

Independent Claim 11 relates to a turbine blade proximity control system, and recites, *inter alia*:

> a frequency modulation (FM) demodulator adapted to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with, and is representative of, the proximity of each of the turbine blades to the non-rotating turbine component; and
>
> a controller coupled to receive the proximity signal from the FM detector and operable, in response thereto, to control the proximity of the turbine blades to the non-rotating turbine component.

Independent Claim 20 relates to a gas turbine engine and recites, *inter alia*:

a frequency modulation (FM) demodulator coupled to receive the frequency modulated sensor signal and operable, in response thereto, to supply a proximity signal having an amplitude that varies with, and is representative of, the proximity of each of the turbine blades to either the turbine case or one or more components mounted thereto, and

a controller coupled to receive the proximity signal from the FM detector and operable, in response thereto, to control the proximity of each of the turbine blades to either the turbine case or one or more components mounted thereto.

Ham et al. relates to an apparatus and method for determining flow through a turbine flowmeter, and discloses a pickup winding (20) electrically coupled in parallel with a capacitor (44) to provide tuning with resonance either when a flowmeter vane (8) is adjacent to or remote from the pickup winding (20). Ham et al. further discloses that the winding (20) and capacitor (44) provide a highly variable reactance in the feedback connection to the tap of a coil (26), which forms an LC oscillator tank circuit with another capacitor (30). As a result, "the magnitude of the [oscillator's] oscillations is modulated at a frequency directly proportional to the frequency of passage of the vanes 8 past the pickup unit." See col. 3, ll. 54-56. Hence, Ham et al. discloses nothing whatsoever regarding proximity detection, let alone turbine blade proximity detection and control of turbine blade proximity.

Miyata et al. similarly relates to an apparatus and method for determining flow through a turbine flowmeter, and discloses an impeller (9) that revolves in the presence of fluid flow so that blades (12) on the impeller pass in front of a detection electrode (21), and vary the electrostatic capacity therebetween. The change of electrostatic capacity is given to an oscillation circuit (30), which supplies a signal that has been frequency-modulated. The frequency-modulated oscillation signal is supplied to a frequency discriminator (33), where the signal is demodulated and converted into a corresponding change of amplitude. The signal from the discriminator (33) is sent to a shaping circuit (34), which supplies pulse voltage signals proportional to the number of the blades (12) that have passed the detection electrode (21). The pulse voltage signals are counted by a counter to determine, from the number of revolutions of the impeller, the flow rate of the fluid. Hence, as with Ham et al., Miyata et al. also fails to disclose proximity detection, let alone turbine blade proximity detection and control of turbine blade proximity.

As to Stowell, this reference relates to microwave-based turbine blade proximity detection and control. More specifically, Stowell discloses a sensor (25) through which two

sinusoidal microwave signals pass along two lines (18, 21). Any change in clearance between a blade and a shroud is evinced by a relative phase shift between the signals. Stowell also discloses modifying the clearance based on the phase shift.

Applicant submits that suitable factual findings have not been articulated as to why the ordinarily skilled artisan would combine Ham et al., Miyata et al., and Stowell to obtain the configuration claimed in independent Claims 11 and 20. This lack of clear articulation of factual findings runs contrary to the examination guidelines published by the Office. Moreover, the rationale proffered in the final Office action does not comport with any of the rationales delineated in the guidelines.

Specifically, Applicant notes that the proffered rationale does not comport with the rationale of "Combining Prior Art Elements According to Known Methods to Yield Predictable Results" in that the Office action does not articulate a factual finding that, in combination, each element recited in these claims would have performed the same function as it did separately. It is believed that such a finding cannot be made. In particular, rather significant and non-obvious modifications would need to be made to the devices disclosed in each of these references in order that the fluid flow sensors of Ham et al. and/or Miyata et al. could be used to detect turbine blade proximity. Moreover, the proximity sensing and control device of Stowell would also have to be significantly modified to be compatible with the detectors of Ham et al. and Miyata et al.

The proffered analysis also does not comport with the rationale of "Simple Substitution of One Known Element for Another to Obtain Predictable Results." Indeed, a mere substitution would not result in Applicants' claimed invention. Rather, significant modifications would have to be made to each of the cited references. The rationale of "Use of Known Technique To Improve Similar Devices in the Same Way" would also fail to suggest Applicants' invention. This is because none of these references allow a finding of fact that suggests a comparable device improved in the same way as the claimed invention.

It is further noted that the Office action includes no articulated findings of fact that would support the rationale of "Applying a Known Technique to a Known Device Ready for Improvement to Yield Predictable Results." Indeed, there was no articulation of a finding that one of ordinary skill would have recognized that applying the fluid flow rate sensors of Ham et al. and Miyata et al. to the system of Stowell would have yielded the improved system as

claimed in independent Claims 11 and 20. The so-called "Obvious to Try" rationale is also not supported because there is no articulation of a finding that the ordinarily skilled artisan could have pursued known potential solutions with a reasonable expectation of success in coming to the claimed system. The rationale of "Known Work in One Field of Endeavor May Prompt Variations of it for Use in Either the Same Filed or a Different One Based on Design Incentives or Other Market Forces if the Variations Would Have Been Predictable to One of Ordinary Skill in the Art" also fails because a factual finding of any design incentives or market forces that would have suggested Applicants' claimed invention has not been articulated.

Finally, there is no "Teaching, Suggestion, or Motivation . . ." rationale, either. Indeed, it is unclear why a person of ordinary skill in the art of turbine blade proximity detection and control would even look to fluid flow sensors for solutions to a problem. The final Office action attempts to refute this argument by providing merely conclusory statements, many of which are legally and technically inconsistent. In particular, the final Office action alleges that Miyata et al. discloses an FM demodulator that supplies a proximity signal having an amplitude that varies with, and is representative of, turbine blade proximity. This teaching, however, is nowhere to be found.

The final Office action also alleges that Ham, Miyata et al., and Stowell are analogous art because "they all related to turbine blade sensing." (Final Office action at 2). This, of course, is not the test. Rather, it overstates the legal test. The legal test for analogous art is whether the art is in the same field of endeavor and if not, whether, because of the matter with which it deals, would have logically commended itself to an inventor in considering the problem. In re Icon Health and Fitness, Inc., No. 06-1573 (Fed. Cir. Aug 2007), citing In re Clay, 966 F.2d 656, 659 (Fed. Cir. 1992). Here, neither Ham nor Miyata et al. are in the same field of endeavor as the present invention or of Stowell. The two primary references are directly solely to the field of fluid flow rate measurement, whereas the present invention and Stowell are directed to turbine blade proximity detection and control. Moreover, no person skilled in the art of detecting and controlling turbine blade proximity would even think to look to turbine flow meters to solve a problem related to turbine blade proximity detection and control. Indeed, it is clear from the applied art that persons working in turbine flow meters do not concern themselves with determining and controlling turbine blade proximity. To state otherwise, with clear evidence to the contrary, is illustrative of the logical fallacy of conclusion

without support.

Even if one were to stipulate that Ham nor Miyata et al. are analogous art (which Applicants do not), the final Office action fails to address why the ordinarily skilled artisan would be motivated completely redesign the detection circuitry of Ham et al. to include that of Miyata et al. , and why the detection circuitry thus modified would then be further modified by Stowell.

As to the other cited references none of these disclose or suggest at least independent Claims 11 and 20.

In view of the foregoing, Applicant requests reconsideration and withdrawal of the § 103 rejections.

Respectfully submitted,

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